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ABSTRACT

This paper argues that researchers should not investigate child development simply through studies of the child alone or mother-infant interactions, but rather through studies of the family as a system. Data is reported which seem to support this view. A review of recent literature indicates that an adequate account of child development requires an interdisciplinary effort involving family sociology and developmental psychology. A conceptual model is proposed in which there are reciprocal interrelations between the child's development, parental behaviors, and husband-wife interactions. Data drawn from a previously published study appear to support this model with respect to interrelations (1) between paternal (and maternal to a lesser degree) parental behaviors and husband-wife interactions, (2) between parental behavior and infant exploratory competence and (3) between infant competence and husband-wife interactions. Further research about these interrelations as they change over time is recommended. (BH)

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# THE INTERRELATION OF PARENTING, SPOUSAL INTERACTION AND INFANT COMPETENCE: A SUGGESTIVE ANALYSIS*

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In her excellent review of research on family interaction, Aldous (1977) recently noted that social scientists have developed an "unexpressed working arrangement" whereby sociologists concern themselves primarily with the marital relation while psychologists focus mainly upon the parent-child relation. Nowhere is the validity of this observation more evident than in the early childrearing years of the family life cycle. In the field of family sociology there exists an entire body of evidence concerning the impact of the child on the husband-wife relationship. To a large extent, this "transition to parenthood" research has been devoted to determining whether, and to what degree, spousal couples experience a "crisis" following the birth of their first baby (e.g., Dyer, 1963; Hobbs, 1968; LeMasters, 1957; Russell, 1974). In the field of developmental psychology, an entirely independent body of research exists concerning parent-infant interaction. The major emphasis of this work has been on documenting characteristics and consequences of the mother-child relationship (e.g., Ainsworth, 1973; Clarke-Stewart, 1973; Lewis & Lee-Painter, 1974), though in recent years increased attention has been devoted to the long-neglected father-infant relationship (e.g., Belsky, 1978; Parke & O'Leary, 1976; Lamb, 1977).

What is apparent upon review of both of these fields of inquiry is how little cross-fertilization has gone on between disciplines. Indeed, that which has emerged seems stimulated primarily by the recent "discovery" of fathering during the infant years (Lewis & Weinraub, 1976; Parke, 1978; Pedersen, 1975). In fact, careful scrutiny of recent trends in research on parent-infant interaction indicates that this discovery has resulted in significant theoretical advancement; for it has forced child developmentalists, who have traditionally studied the mother-infant relationship as if it existed within a vacuum, to come to grips with the family as a system. In so doing, it has engendered within developmental psychology a concern for issues that have traditionally fallen within the boundaries of family sociology.

The recent theorizing on the role of fathers during infancy evidences this concern most clearly. In delineating potential indirect effects that fathers may have on their infants' development, Pedersen et al. (1978), Lewis and Weinraub (1976) and Parke (1978) all point to the fact that many paternal influences may be mediated by the wife in her capacity as mother. This, of course, highlights the need to consider the spousal relationship while studying parental behavior and its effect upon infant development.

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The goal of the present report is to begin to elucidate some of the linkages between the disciplines of family sociology and developmental psychology and, in so doing, highlight the complexity of the family system during infancy. In order to accomplish this task, data from a large study of family interaction in toddlerhood (Belsky, 1978) are drawn upon for purposes of illustrating a conceptual model of familial influences upon family interaction during infancy (Belsky, 1979a) in which (1) patterns of mothering and fathering are assumed to be influenced by the quality of the spousal relationship; (2) are in turn assumed to influence infant development, (3) which in turn is hypothesized to affect patterns of husband-wife interaction (see Figure 1). Although it is recognized that the simultaneous investigation (at only one point in time) of husband-wife interaction, parent-infant interaction, and infant exploratory competence in the present study can not definitively illuminate cause and effect relations, and that the aforementioned pathways of influence within the family system are most certainly bidirectional in nature (as indicated by the dotted lines in Figure 1), the correlational data presented in this report are discussed in such terms for heuristic purposes. Given the general absence of empirical and theoretical work in this area during the infant years, this model building approach seemed a reasonable way to explore the data gathered.

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Insert Figure 1 About Here

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## METHODS

### Sample

The sample of this study consisted of forty middle class families with infants 15 months of age who were recruited to participate in the research by means of introductory letter and follow-up phone call (58% acceptance). All families who agreed to participate could be described as traditional in terms of their household division of labor, with fathers leaving home each day to go to work and mothers remaining home to serve as primary caregivers. In 24 of the households the target child was male and in the remaining 16 she was female.

### Design

The study design called for observing families on two separate weekdays, for two hours each day, for purposes of recording mother-infant, father-infant, and husband-wife interaction, and for returning to the home within a week of the second observation (and prior to the child's fifteenth month birthday) to carry out an experimental assessment of infant exploratory competence developed especially for this study.

Naturalistic Observations. Prior to the onset of each of the observations of family interaction, as well as during an initial visit to the home which preceded all data collection, parents were directed to go about their regular household routines and ignore the presence of the observer. In consultation with parents, time of observation was selected to reflect the child's everyday experience with each of his parents, and they with him, in dyadic (mother/father-infant) and triadic (mother-father-infant) situations. Consequently, the large majority (80%) of observations were conducted in late afternoon and

early evening, beginning one hour before father arrived home from work and continuing for an additional hour following his arrival. Although an observational system was employed that distinguished between periods in which each parent was alone with the child or in the presence of the spouse, the parenting data to be discussed in this report are based upon the combination of these two data sets. (For additional details regarding the selection of observation time and the rationale behind it, see Belsky, 1978).

The parental behaviors coded during the observations were drawn from previous home-based work on mother-infant interaction highlighting developmentally facilitative parental styles (e.g., Beckwith, 1971; Clarke-Stewart, 1973), as well as from investigations highlighting differences between mother-infant and father-infant interaction (e.g., Lamb, 1977; Parke & O'Leary, 1976). They included vocalizing to child, verbally responding to child, restricting, expressing positive affection, soothing, providing basic physical care and several styles of play. (For a complete list and definition of behaviors considered in this report see Belsky, 1979b).

The spousal behaviors coded were based upon the prior work of Frank Pedersen (1975) and included talking about baby related matters, talking about non-baby related matters, and sharing pleasure regarding baby's activities (operationally defined as parents looking at each other and smiling or laughing about something the child did). In addition to coding these spousal behaviors, two five-point ratings were made of the spousal relationship. One was labelled Spousal Harmony and served as a measure of the degree to which interaction between husband and wife evidenced careful listening, emotional warmth and mutual agreement over what was appropriate for the baby. The other labelled Three Person Interaction assessed the extent to which husband and wife organized their interactions to include the child and parent-infant interaction was organized to include the other parent.

In light of the large number of behaviors coded, and the difficulty in coding live triadic interaction, behavior was recorded by means of a precoded check list employed on a time-sampling basis. More specifically, behavior was observed and recorded during alternating 15 second periods so that during the course of each of two, two hour home observations on every family, one hour's worth of data was gathered. Adequate levels of inter-observer agreement were achieved prior to the initiation of data collection with respect to both the behavioral variables and ratings. Since families were observed for differing amounts of time in father-alone-, mother-alone-, and both-parents-together-with-child situations, as a function of naturally occurring variation in family routines, all data were prorated to reflect standard 30 minute periods in each situation per observation session. As preliminary analyses revealed no significant differences across the two observation sessions on any parent and spousal behaviors and ratings, the two data sets were combined (via summation) and treated as one.

Exploratory Competence Assessment. In order to assess infant exploratory competence, each baby was presented, in the security-promoting presence of his mother and own home, with a prescribed set of manufactured and home-made toys.

During the course of this 10-minute play period the nature of the baby's activities were coded by means of a precoded checklist employed on a 10 second by 10 second basis. From the data gathered, four measures of infant exploratory competence were derived which were considered to reflect the child's skill in exploring and motivation to explore; they were (a) the number of 10 second periods in which the child was uninvolved with the play materials or with any other things nearby (Aimless); (b) the time in seconds of the child's longest bout of attention with any single toy (Lengthiest Perseveration Time); (c) the number of "Appropriate Behaviors" observed; appropriate being defined as those actions uniquely suited to a particular toy or toys and not likely to occur during play with other objects, such as dialing a toy telephone (after McCall, 1974); and (d) Creativity, a score based upon the relative infrequency with which the appropriate behaviors displayed by each child were carried out by the other 39 children (also after McCall, 1974). (For more details concerning procedures, materials and scoring, see Belsky, 1979b). Although no attempt was made to validate the measures obtained, the competent explorer was hypothesized to play with toys for extended rather than fleeting periods of time, remain involved with the play materials, and extract from them information inherent within them--as indicated by the exploitation of their unique properties.

## Results and Discussion

In order to highlight the previously described conceptual model of familial influences on family interaction during infancy (Figure 1), three separate correlational analyses were conducted. First, the three behavioral and two rating measures of the spousal relationship were correlated with seven measures of maternal and paternal behavior. Secondly, a larger number of parental behavior scores were correlated with the four indices derived from the exploratory competence assessment. And finally, these four competence measures were correlated with the original spousal variables. In the discussion of results to follow, each of these analyses is considered in turn, followed by an integrative summary.

A. The Interrelation of Parental and Spousal Measures. The first thing to be noted about the intercorrelation of the spousal and parenting variables (Table 1) is that this analysis revealed many more associations between characteristics of the husband-wife relationship and fathering than between characteristics of this relationship and mothering. In fact, only six of 35 coefficients generated for mothers achieved statistical significance; for fathers the respective figures were 16 of 35. When these data are interpreted in terms of the spousal relationship influencing patterns of parenting, it seems that fathers are far more susceptible to influence than are mothers. Before proceeding to describe the exact nature of these apparent influences, it should be pointed out that this seemingly greater effect upon fathering is really not surprising. Indeed, when considered in light of the rather traditional nature of the families studied, and the differential cultural training that men and women receive for their eventual roles as parents, these trends are intuitively sensible. Since fathering is not the primary role of most fathers, and was not for any of those studied, and as there is--or at least has been--little overt socialization for this role in American society, it stands to reason that the behavior of fathers should be malleable and thus susceptible to influence. Mothers, in contrast to fathers, receive a fair amount of informal socialization to prepare them for their parental role, and for the women studied this was their primary role. Consequently, it stands to reason that their styles of parenting should be less

susceptible to influence, especially by persons with less training and experience in parenting. (i.e., fathers).

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Insert Table 1 About Here

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Having commented about a possible reason why father-spouse correlations are greater in number and magnitude than mother-spouse coefficients, we can turn our attention to the nature of these associations. With regard to both mothering and fathering, the data indicate that couples who frequently speak to and are verbally responsive to their babies evidence more Spousal Harmony, Three Person Interaction and pleasure sharing with respect to their toddler's activities. Fathers, moreover, who frequently stimulate and play with their children, and infrequently read to themselves or watch TV, come from families in which the spousal relation is characterized by high levels of emotional warmth, careful listening and mutual agreement (i.e., Spousal Harmony). Similar fathering patterns are also evidenct within families in which spouses frequently speak about the baby, share pleasure concerning the child, and include the child in their interactions. Finally, fathers from families in which spousal conversation regarding the baby is frequent tend to restrict their toddlers infrequently.

In summary, these data suggest, when considered in causal terms, that spousal relations marked by warmth, pleasure sharing, frequent conversations about the baby, and inclusion of the child in husband-wife interactions, promote maternal, and especially paternal involvement in parenting.

B. The Interrelation of Parental Behavior and Infant Exploratory Competence. To date, most of the research on cognitive socialization in infancy has focused upon the effect of maternal behavior on infant cognitive and social development (e.g., Beckwith, 1971; Clarke-Stewart, 1973). Only Clarke-Stewart (1978), in her small-sample study of 14 families, has attempted to relate observed patterns of paternal behavior to assessments of infant development. Thus, the present study, in addition to shedding light upon the complex nature of family interaction during infancy, represents a real contribution to a much neglected area of concern.

Examination of the correlations between parenting behavior and infant performance in the toy-play situation suggests, when interpreted in causal terms, that both mothers and fathers influence their toddlers development. More intriguing, however, is the fact that this analysis revealed both similarities and differences in the manner in which mothers and fathers may enhance their infants' skills in exploring and motivations to explore (see Table 2). With respect to similarities, high levels of stimulation and physical contact during play, by both mothers and fathers, were found to be positively related to exploratory skill exhibited in the semi-naturalistic play situation. (For a detailed discussion of the processes that may account for these associations, see Belsky, 1979b.)

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Insert Table 2 About Here

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The first set of mother-father differences to be considered concern the correlations involving the various styles of parental play that were distinguished during the coding of interaction. While mothers who frequently engaged their infants in object-mediated or social play had infants who spent long periods focused upon a toy and evidenced much creativity in their use of the toys, it was high levels of vigorous motion play on the part of fathers that was positively correlated with infant competence. It is of interest to note here that investigations concerning differences in mean levels of maternal and paternal behavior generally indicate that mothers more frequently engage in play involving toys and social games than do fathers, who appear to excel in physical play (Clarke-Stewart, 1978; Lamb, 1977).

Mother-father differences were also evident in various domains of physical contact behavior. Quite surprisingly, several of the competence indices were positively related to the frequency with which fathers--but not mothers--hugged and kissed (positive affection), took physical care of (caretake), and comforted their children (soothe). To the extent that these behaviors may be considered traditionally maternal, infants with fathers likely to display them may benefit because they are receiving something special or extra. Additionally, since many of these parenting behaviors involve warm, loving contact between father and child, they may serve to promote basic trust and thus industry and initiative (Erikson, 1950).

Finally, there was a general trend in the data which indicated that general father involvement in parenting is positively related to exploratory competence. More specifically, several individual correlations revealed that fathers who spoke frequently to and were verbally responsive to their toddlers had children who displayed little aimlessness but high levels of creativity during the play task. In contast, those fathers who frequently engaged in solitary pursuits such as reading and watching TV had toddlers who had difficulty getting and/or staying involved in exploration.

In summary, the data suggest, when interpreted in causal terms, that mothers, and especially fathers, enhance their toddlers' motivation to explore and skill in exploring though the interest they show toward, and the pleasure they derive from their children.

C. The Interrelation of Infant Competence and Husband-Wife Interaction. To complete this examination of the interrelation of parenting, spousal interaction and infant competence, we shall consider the last link in the proposed conceptual model of familial influences upon family interaction during infancy by discussing the findings regarding the intercorrelation of infant competence measures and spousal variables. These data, which can easily be summarized, suggest, when interpreted in causal terms, that highly competent development encourages warm, harmonious relations between spouses, as well as the inclusion of the child in spousal interaction (see Table 3). More specifically, toddlers who were frequently uninvolved with the toys presented (Aimless) came from families in which Spousal Harmony and Three Person Interaction were rated low, whereas in those families in which these same spousal variables were rated high, infants displayed high levels of creativity in their toy play. Finally, less competent development, as characterized by frequent aimless periods, was related to frequent spousal conversations about adult concerns, suggesting that less competent development might possibly encourage fathers to converse with their wives about matters unrelated to their children.

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Insert Table 3 About Here

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## Summary and Conclusions

When all the data presented are considered in terms of the proposed conceptual model, it appears that harmonious spousal relations promote parental, and especially paternal, involvement in the family, which in turn fosters the development of infant exploratory skill. Highly motivated and skillful explorers, in turn, appear to positively influence the marital dyad by promoting harmonious spousal and family relations and encouraging parents to include the child in their interactions with one another. Considered together, these results clearly suggest a complex of relations interconnecting individual development with the parent-infant and husband-wife relational systems.

Although the causal interpretations applied to the data presented cannot, and should not, be considered definitive, they nonetheless highlight the manner in which the spousal relationship may both affect and be affected by the parent-infant relationship. In so doing, they demonstrate that the husband-wife and parent-child systems are not independent, but rather reside within a more inclusive ecological unit--the family system. If one of our goals as investigators of child development is to advance our understanding of the nature and consequences of the parent-infant relationship, we must bridge the disciplines of developmental psychology and family sociology by addressing issues concerning the spousal dyad in addition to those that have more traditionally been the focus of our discipline.

To such a bridge, it is worth pointing out, we can bring our expertise concerning development which is essential if we truly desire to understand individual and family functioning. Such an expertise is required, in fact, in order to transform from a static to a dynamic state the conceptual model outlined in Figure 1. The task ahead, then, is not only to delineate the nature of the linkages connecting the spousal relationship, the parenting system, and child development at a single point in time as attempted in this modest investigation, but to succeed in characterizing the nature of these linkages as this complex of relations changes across time. As my colleagues at Penn State, Richard Lerner and Graham Spanier, have recently pointed out, this will be no mean feat, as the data collection and data analytic strategies capable of dealing with such a complex and changing system are not presently clear (Lerner & Spanier, 1978). In closing, I am excited to say that I am presently involved with these two investigators on this intriguing problem as it concerns the pregnancy period, transition to parenthood, and first year of the infant's life.

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Table 1

Significant Pearson Product Moment Correlations Between Spousal Variables and Parental Behavior Variables[1]

| PARENTAL BEHAVIORS | Spousal Variables: Spousal Harmony | Share Pleasure | Baby Related Vocal. | Non-baby Related Vocal. | 3 Person Interaction |
|---|---|---|---|---|---|
| **MOTHER** | | | | | |
| Total Voc. | .39 | .33 | | | .52 |
| Verb. Response Rate | .31 | | | | .51 |
| Stimulate | | | | | .31 |
| Restrict | | | | | |
| Read/Watch TV | | | | | |
| Total Play[2] | | | | | |
| Total Touch[3] | | | | | |
| **FATHER** | | | | | |
| Total Voc. | .31 | .31 | | | .31 |
| Verb. Response Rate | .41 | | .43 | | .33 |
| Stimulate | .41 | .39 | .31 | | .60 |
| Restrict | | | -.33 | | |
| Read/Watch TV | -.54 | | | | -.47 |
| Total Play | .50 | .46 | | | .44 |
| Total Touch | | | | | |

1. $r \geq .31$, $p < .05$; $r \geq .36$, $p < .01$.

2. Total Play = Object Play + Social Play + Vigorous Motion Play

3. Total Touch = Simple + Caretake + Positive Affection + Soothe + Play Touch

Table 2

Significant Pearson Product Moment Correlations Between Exploratory Competence Measures and Maternal/Paternal Behaviors[a]

| | Exploratory Competence Measures | | | |
|---|---|---|---|---|
| | Longest Perseveration Time | Periods of Aimlessness | Appropriate Behaviors | Creativity Index |
| **MATERNAL BEHAVIORS** | | | | |
| Total vocalizations | | | | |
| Verbal Response Rate | | | | |
| Stimulate | | | .36 | |
| Restrict | | | | |
| Read/Watch TV | | | | |
| Simple Touch | -.44 | | | |
| Soothe | | | | |
| Caretake | | | | |
| Positive Affection | | | | |
| Play Touch | | | | .41 |
| Object Play | .31 | | | |
| Social Play | .35 | | | .44 |
| Vigorous Motion Play | | | | |
| **PATERNAL BEHAVIORS** | | | | |
| Total Vocalizations | .51 | -.32 | | .62 |
| Verbal Response Rate | | -.39 | | |
| Stimulate | | | | .32 |
| Restrict | | | | |
| Read/Watch TV | | .41 | | |
| Simple Touch | | | | |
| Soothe | | | | .32 |
| Caretake | .39 | | | |
| Positive Affection | .42 | | | .56 |
| Play Touch | | | .40 | .37 |
| Object Play | | | | |
| Social Play | | | | |
| Vigorous Motion Play | | | | .38 |

[a] $N = 40$, $r \geq .31$: $p < .05$; $r \geq .40$: $p < .01$.

Table 3

Significant Pearson Product Moment Correlations Between Spousal and Infant Exploratory Competence Variables[1]

| | Indices of Exploratory Competence | | | |
|---|---|---|---|---|
| Spousal Measures | Lengthiest Perseveration Time | Aimlessness | Appropriate Behavior | Creativity Index |
| Spousal Harmony | | -.37 | | .34 |
| Share Pleasure | | | | |
| Baby Related Voc. | | | | |
| Non-Baby Related Voc. | | .36 | | |
| 3 Person Interaction | | -.40 | | .35 |

1. $r \geq .31$, $p < .05$; $r \geq .36$, $p < .01$

Figure 1

A Conceptual Model of Familial Influences on Family Interaction During Infancy